Remarks

Claims 1, 3-11, 13, 14, 16-18, and 20-24 are pending. Claims 1, 3-11, 13, 14, 16-18, and 20-24 are rejected. Claims 3 and 20 are amended herein. No new matter is added. All rejections are respectfully traversed.

Claim 3 is amended to more distinctly claim the invention. Claim 20 is amended to correct a clerical error.

The invention diagnoses a type of failure of a connection between devices connected by a link in a network connected by a link. At least one of the devices includes a plurality of registers, each register being adapted to store data about one or more types of failure. An auto-negotiation sequence is run. A failure is detected and signals relating to that failure are passed to the relevant register(s). One or each register is interrogated to determine the type of failure from a plurality of types of failure. The step of determining the type of failure includes the step of determining the data in the relevant register(s) from said data, indicating the type of said failure and/or a proposed course of action.

Claims 1, 3-11, 13, 14, 16-18, and 20-24 are rejected under 25 U.S.C. 103(a) as being unpatentable over Sterner (U.S. 6,728,216) in view of Hurwitz (U.S. 5,884,041).

Hurwitz describes monitoring an auto-negotiation process. A number of intermediate steps in the auto-negotiation process are monitored. Codes are successively stored in a progress memory or register to indicate a degree of

completion of the auto-negotiation process. The codes stored in the register as described by Hurwitz indicate a degree of completion. Claimed is detecting said failure and passing signals relating to that failure to the relevant register(s). Hurwitz stores progress information in the registers. In contrast, the invention stores failure information. So while Hurwitz must deduce a failure from information of a last state of ***progress***, the invention can derive a type of failure directly by determining the data in the relevant register(s) and from said data, indicating the type of said failure and/or a proposed course of action, as claimed.

Further, Hurwitz only stores ***progress*** information in a register, while the invention includes data for each type of failure in a plurality of registers. Hurwitz fails to teach storing failure information in a relevant register for the type of failure, and indicating the type of said failure and/or a proposed course of action, as claimed. Therefore, Hurwitz can never be used to make the invention obvious.

Sterner fails to cure the defects of Hurwitz. Sterner describes a repeater for monitoring the link status of high speed data links, and selectively changing a selected high speed data link to a slower data rate based on detection of a marginal or unacceptable link status on the selected high speed data link and user configuration signals supplied locally to the repeater, without using a network manager. An important distinction between Sterner and what is claimed is that Sterner stores bit-error data in a register and determines if a failure occurred by polling the register and comparing the bit-error to a threshold. In contrast, claimed is detecting said failure and passing signals relating to that failure to the relevant register. The invention then

interrogates the registers to determine a type of failure from the data in the registers. A person of ordinary skill in the art would readily understand that bit-errors are not link failures. Bit errors are normal and expected to occur in a link between devices. Sterner checks the register to determine if the bit error rate is above a threshold, which may be considered a failure. The invention interrogates the or each register ***in response to*** detecting a failure, as recited, in part, in claim 1 below:

> "***detecting said failure*** and passing signals relating to that failure to the relevant register(s),
>
> ***interrogating the or each register***, and
>
> ***determining the type of said failure*** from a plurality of types of failure" *emphasis added*

In contrast, Sterner interrogates the register to detect, i.e., in the first instance, whether or not the bit-error rate has exceeded a threshold, see col. 7, line 61 through col. 8, line 6. There, it is clearly taught that the register is checked whether or not the threshold is exceeded. That can never teach interrogating registers in response to a detected failure to determine a failure type, as claimed. Therefore, the Applicant respectfully requests that the rejection of independent claims 1, 18 and 20 be reconsidered and withdrawn.

Claim 3 recites displaying a message indicating the type of said failure and/or a proposed course of action on a visual display unit. Claim 3 as amended distinguishes over the Examiner's official notice. A person of ordinary skill in the art would readily understand that an LED indicator can never display a message indicating a type of said failure and/or a proposed course of action, as claimed. The invention provides a message and/or a

proposed course of action. Surmising a type of error and/or proposed course of action based on an LED indication would require specific knowledge of the meaning of the LED. The invention spells out, in a message, what is wrong and what to do. Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection.

In claim 4, said failure comprises a loss of light. First, as stated above, Hurwitz monitors and indicates a degree of completion of an auto-negotiation. The invention detects a failure and passes signals relating to that failure to the relevant register(s). Hurwitz stores progress information in the registers. In contrast, the invention stores failure information. The Examiner's official notice is pure conjecture because there is absolutely nothing in Hurwitz that suggests detecting a loss of light failure by monitoring an auto-negotiation progress. Further, the invention detects a failure and determines a failure type from a plurality of types of failure. Hurwitz stores progress information. In the event of a failure, Hurwitz looks to the progress information, not failure type information as in the invention. Further still, the Examiner's official notice of known failures is done with impermissible hindsight. The Examiner is using official notice of types of failure to erroneously assert that the references somehow suggest, alone or in combination, that they determine a type for a detected failure from a plurality of types, which is simply not true. The same is true for claims 5-9, where the failure is a bit/word alignment failure; a loss of synchronization during auto-negotiation; an auto-negotiation protocol hang during base page exchange; an auto-negotiation protocol hang during next page exchange; and an auto-negotiation protocol (repeated) restart due to initiation of a "break link", respectively. Hurwitz never suggests detecting an error and then

interrogating registers storing failure data to determine a failure type, as claimed. Nor do the references suggest determining a type for a detected failure from a plurality of types of failure.

In claim 10, the steps of interrogation and of determining are controlled by a program on a device in the network. Hurwitz polls a register of progress data. In contrast, claimed in interrogating the or each register including failure data. Those are completely different operations. Polling progress data is not polling failure data. The same is true for claim 11, where the steps of interrogation and of determining are controlled by a program on one of said devices. The same is also true for the Examiner's impermissible hindsight in his assertion of official notice regarding claims 13-14 and 23-24.

In claim 16, said bit error counter is set at regular intervals, to provide bit error rate calculations. Sterner uses the bit error counter to detect a failure, but never suggests determining a type of failure from a plurality of types for a detected error, as claimed.

In claim 17, said signal detector logic includes an auto negotiation state machine which deals with the exchange of one or more pages of information between the two devices, handles link restarts by the link partner, and reports the link state and hangs.

In claim 21, said detection step is carried out by signal detector logic in one of said devices. Sterner teaches detecting a bit error rate above a threshold, but cannot determine the type of failure from a plurality of types, as claimed. The section is directed only to detecting high bit error rates. Sterner is silent

as to how to determine type. There is only one type described in Sterner. The same is true for claim 22, where the signal detector logic in one of said devices includes a bit error counter to count symbol errors.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicant's attorney at the number listed below. Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 50-6350.

Respectfully submitted,
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